

CLAIM AMENDMENTS

1. (Currently amended) A building sequence planning system for an automobile production line, said system comprising:

an input unit for inputting vehicle information of vehicles to be manufactured,

a processing unit for deciding an optimum building sequence based on the vehicle information inputted through said input unit, and

an output unit for externally outputting a building sequence schedule decided by said processing unit, wherein said processing unit ~~prepares a~~ includes

an initial offline sequence preparing unit for preparing an initial vehicle building sequence, determines sequence of the automobile based on the vehicle information inputting said input unit,

an initial lead-time developing unit for developing the building sequence in an offline point for the building sequence of the automobile based on the vehicle information prepared by said initial offline sequence preparing unit, which corresponds to an assembly completion process, to shifting by employing the number of vehicles residing or accumulated between two processes, thereby deciding the building sequence for each of the preceding and succeeding processes,

a sequence evaluating unit for evaluating the building sequence developed by determining a degree of dissatisfaction of the prepared building sequence, as a penalty value, in accordance with restriction conditions,

~~which are inputted through said input unit and are imposed when building the vehicles into work, and decides a~~ an offline sequence preparing unit for preparing another pattern of the successive building sequence in an offline process.

a lead-time developing unit for preparing the successive building sequence for the entire process for another pattern of the successive building sequence prepared by said offline sequence preparing unit by using a lead-time shifting by employing the number of vehicles residing or accumulated between two processes, and

an evaluation determining and storing unit for deciding a building sequence with a minimum penalty based on the penalty value evaluated by said sequence evaluation unit ~~with a minimum penalty by preparing a plurality of building sequences and determining the penalty value for each building sequence with respect to the restriction conditions.~~

2-3. (Canceled)

4. (Currently amended) A building sequence planning system for an automobile production line according to Claim 1,

wherein, in a mixed line including branches and joints, said ~~processing~~ lead-time developing unit calculates a different lead time for each vehicle by employing the number of vehicles residing or accumulated between two processes, and propagates the building sequence to preceding and succeeding

processes with lead-time shifting, thereby deciding the building sequence for each of the preceding and succeeding processes.

5. (Original) A building sequence planning system for an automobile production line according to Claim 3,

wherein, for a vehicle which has to pass a line twice because of work for two-tone color painting, the lead time is modified by adding a time or the number of vehicles.

6-9. (Canceled)

10. (Original) A building sequence planning system for an automobile production line, said system comprising an input unit for inputting information of vehicles to be manufactured, a processing unit for deciding an optimum building sequence based on the vehicle information inputted through said input unit, and an output unit for externally outputting a building sequence schedule decided by said processing unit,

wherein said processing unit prepares a vehicle building sequence, determines a degree of dissatisfaction of the prepared building sequence, as a penalty value, in accordance with restriction conditions which are inputted through said input unit and are imposed when building the vehicles into work, the restriction conditions including leveling in distribution of vehicles having the same specifications, a minimum building interval of vehicles having particular

specifications, and a maximum succeeding vehicle number and a minimum succeeding vehicle number in successive building of the vehicles when the number of vehicles successively loaded is taken into consideration, and decides a building sequence with a minimum penalty by preparing a plurality of building sequences and determining the penalty value for each building sequence with respect to the restriction conditions, and

wherein said processing unit propagates the building sequence in an offline process, which corresponds to an assembly completion process, to preceding and succeeding processes with lead-time shifting by employing the number of vehicles residing or accumulated between two processes, thereby deciding the building sequence for each of the preceding and succeeding processes.

11. (Canceled)

12. (New) A building sequence planning method for an automobile production line for deciding an optimum building sequence based on the inputted vehicle information comprising:

preparing a vehicle building sequence, determining a degree of dissatisfaction of the prepared building sequence, as a penalty value, in accordance with restriction conditions that are inputted through said input unit and are imposed when building the vehicles into work, the restriction conditions including leveling in distribution of vehicles having the same specifications, a

minimum building interval of vehicles having particular specifications, and a maximum succeeding vehicle number and a minimum succeeding vehicle number in successive building of the vehicles when the number of vehicles successively loaded is taken into consideration, and deciding a building sequence with a minimum penalty by preparing a plurality of building sequences and determining the penalty value for each building sequence with respect to the restriction conditions, and

propagating the building sequence in an offline point, which corresponds to an assembly completion point, to preceding and succeeding processes with an lead-time shifting by employing the number of vehicles residing or accumulated between two processes, thereby deciding the building sequence for each of the preceding and succeeding processes.